

Appn No. 10/623,528. Filed 07/22/2003 Response to Office Action of 11/22/2005

Remarks/Argument

Claims 1-23 are cancelled from this application and their prosecution continued in the CIP application No. 10/885,690, which has a more comprehensive disclosure of embodiments to which that aspect of the invention is directed, e.g. the tube devices of Figures 19-22. The corresponding introductory paragraphs [001] through [0021] are cancelled as superfluous. The amended, original and new claims that remain differ from those in the CIP application in a manner which it is believed removes the objection of double patenting under 35 U.S.C. 101.

Claims 14-17 and 24-27 are rejected under 35 U.S.C. 103(a) on the basis of the combination of Voudouris (5913680) and Hanson (5586882), but with respect such an objection is only applicable to cancelled claims 14-17. This leaves only Hanson for its showing of a spring shutter/retainer member 46 that slides on the bracket body between slot open and closed positions, the free end of the member engaging an arch wire 44 in the slot when in the slot closed position. The brackets of the present application employ a fundamentally different structure, wherein a shutter member is pivoted on the body to move between the two positions, and an additional spring member must be provided protruding into the slot to engage the arch wire if the bracket is to be active in its interaction with the arch wire and not passive. The claims now presented are believed therefore to distinguish clearly and patentably from this disclosure.

Claims 24-27 are also rejected under 35 U.S.C. 103(a) on the basis of Abels et al (6659767), particularly in view of the structure shown in Figures 18A and 18B, in which a shutter member 184 is hinged at 188 to the bracket body and is latched in the slot closed position by engagement of part 185 in the entrance to slot 187. In slot closed position an intermediate portion also closes an intermediate unreferenced slot, but neither shutter part engaging in the respective slot opening has a spring member protruding into that slot, so that in both cases the interaction is passive. Moreover, since the shutter member is latched into slot 187 its reaction with any arch wire therein must be passive.

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Shortly after the filing of the CIP application No. 10/885,690 a PCT application No. PCT/CA2004/001052 was ordered to be filed. Since Canada was the Receiving Office, the European Patent Office was the ISO and provided the International Search Report. It proved necessary to file a second search request for claims 18-20, corresponding to claims 24-27 herein, to be searched, in view of a perceived lack of unity of invention under European practice. A copy of the search report is enclosed, or will be sent as a separate transmission owing to the small capacity of the agent's fax machine.

US patent No. 5,685,711 is cited in Category X against claims 18-20. A statement under rule 19 was filed in response and the amendments made to the claims herein bring their scope into correspondence with those now in the PCT application. It will be noted that reference is made to this patent at paragraph [0008], penultimate line and a copy has previously been provided with form PTO/SU/008.

The structure disclosed originated from the inventor herein and, in both the present application and the citation, consists of an orthodontic bracket using in which the slot mouth is closed by a shutter. In the structures of No. 5,685,711 a two-armed spring formed from a thin piece of sheet metal is wrapped around a pivot pin 64. A longer arm 56 on one side of the pivot pin is part of a latch 80,82 that keeps the shutter in the slot closed position, while a shorter arm 54 provides a slot closing shutter that also can function as an attitude controlling spring by its spring engagement with the arch wire.

In the structures of this invention a single-armed shutter 36 is mounted on a pivot pin 64, and a flexible extension of the arm further from the pivot pin comprises an attitude controlling spring 104, 106 that protrudes into the bracket slot to engage an arch wire therein. Both the shutter and the spring are on the same side of the pivot pin, as is now clearly specified in the amended claims, either directly in claim 24, or indirectly by dependence upon claim 24.

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Owing to their extremely small size the design and manufacture of these springs pose a special challenge if they are not to break or fail during a treatment that typically lasts 2-3 years under very difficult conditions. The single continuous flexible element employed in brackets of the invention thus employ a single part of the element as both shutter and attitude controlling spring. Fabrication of such a spring that is sturdy and able to provide the required spring force is facilitated by the additional length of the combined element. It also provides a simple structure for preloading the springs, and also for readily adjusting the amount of preload that can be applied with different brackets.

Some corresponding minor amendments are requested to original claims 25 and 26, while new claims 28 through 30 simply provide some addition combinations of features that are feasible with the substantial reduction in the total number of claims and without requiring the use of multiple dependency claims.

Further prosecution of the amended application to allowance is believed clearly to be merited, and such allowance is therefore requested.

Respectfully:



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